5.4 Weber Pond Watershed Management Plan ................................................................. 5.4-1
5.4.1 Location and General Description ................................................................. 5.4-1
5.4.2 Water Quality Management Plan ................................................................. 5.4-2
  5.4.2.1 Water Chemistry Data ................................................................. 5.4-3
  5.4.2.2 Biological Data ................................................................. 5.4-3
5.4.3 Water Quantity Management Plan ................................................................. 5.4-4
  5.4.3.1 Drainage Patterns and Outlet Information ............................................. 5.4-4
5.4.4 References ........................................................................................................ 5.4-5

List of Tables

Table 5.4-1 Summary of Weber Pond summer average water quality (2005 – 2014) ............... 5.4-3

List of Figures

Figure 5.4-1 Weber Pond Watershed – Subwatersheds and Flow Routing .............................. 5.4-6
Figure 5.4-2 Weber Pond Watershed – Current (2010) and Future (2030) Land Use ................. 5.4-7
Figure 5.4-3 Weber Pond Water Quality Data Summary ......................................................... 5.4-8
Figure 5.4-4 Weber Pond Outlet ....................................................................................... 5.4-9

List of Appendices

Appendix A-5.4 Additional Macrophyte Information
5.4 Weber Pond Watershed Management Plan

5.4.1 Location and General Description

Weber Pond is a 7.5-acre wetland in the City of Mahtomedi, adjacent to the south side of 60th Street North. The wetland is split into two parts by an old streetcar grade. An outlet structure from the larger, northwest lobe of Weber Pond connects to the smaller, southeast lobe. The entire drainage area to Weber Pond lies within the City of Mahtomedi. Figure 5.4-1 shows the tributary area.

Land use within the local Weber Pond watershed currently includes mixed use industrial south and west of the pond and some residential and undeveloped space to the north and east. Small areas of park and developed parkland (soccer and ball fields with associated parking) exist north of the pond. A small portion of the Echo Lake Addition residential subdivision drains to Weber Pond. The undeveloped areas of the direct watershed are expected to develop as multi-optional development by 2030, with some residential and park land use remaining. Current (2010) and estimated future (2030) development land use conditions for the Weber Pond watershed are shown on Figure 5.4-2.

Recreational use of Weber Pond is currently limited to the pond’s landowners and landowners’ employees who use the lake for aesthetic viewing. The old streetcar grade provides a trail between the two sections of the pond. In the past, the Minnesota Department of Natural Resources (MDNR) occasionally used Weber Pond for fish rearing purposes. Weber Pond is at the upstream end of the Project 1007 drainage system.
5.4.2 Water Quality Management Plan

Given that Weber Pond has no public access and is classified as a wetland by the Minnesota Pollution Control Agency (MPCA), the VBWD classified and will manage Weber Pond as a Low Priority waterbody (see Section 4.1 – Water Quality). This is consistent with its classification in the 2005 VBWD Plan. In the VBWD 1995 Plan, Weber Pond was classified as a Level V (wetland) waterbody.

The water quality of Weber Pond is poor. The VBWD has a non-degradation water quality policy which sets “action triggers” for all of its major waterbodies. Section 4.1 – Water Quality discusses the action triggers in more detail. Action triggers for VBWD lakes consider the following water quality parameters (summer average) relative to MPCA water quality standards and prior water quality data (i.e., trend analysis):

- Secchi disc depth
- Total phosphorus
- Chlorophyll $a$

Although the wetland and all of its drainage area is within the jurisdiction of the City of Mahtomedi, the water quality of Weber Pond can impact downstream water resources (most immediately Long Lake).

Specific water quality implementation tasks for Weber Pond include the following.

1. The VBWD will cooperate with other entities to monitor the water quality of Weber Pond at the interval(s) specified in Section 4.1 – Water Quality for Low Priority waterbodies. As for all Low Priority waterbodies, the VBWD will perform additional monitoring or other actions on a case-by-case (see Table 4.1-6).

   The VBWD will evaluate the average summertime water quality (total phosphorus, chlorophyll $a$, and Secchi disc transparency) and compare it to applicable water quality standards (Table 4.1-1) and applicable action triggers (described in Section 4.1.7.5).

2. The VBWD will cooperate with other entities in support of macrophyte management efforts. VBWD efforts may include:
   - point-intercept surveys of aquatic vegetation
   - preparation of lake vegetation management plans (LVMP)
   - completion of Invasive Aquatic Plant Management (IAPM) Permit applications
   - design of herbicide treatment programs
• participation in meetings with MDNR staff
• other technical analysis

3. The VBWD will continue to implement its Rules and Regulations (2013, as amended) in the Weber Pond watershed. The VBWD Rules address water quality performance standards for development and redevelopment projects, as well as required vegetated buffers around VBWD lakes, streams, and wetlands. The VBWD Rules and Regulations are included in this Plan as Appendix A-4.5.

5.4.2.1 Water Chemistry Data
Water quality samples have been collected from Weber Pond beginning in 2003, 2006, 2008, 2009, and 2010. Water quality samples are typically analyzed for total phosphorus and chlorophyll a, and Secchi disc transparency (see Appendix A-4.1 – Water Quality Background Information). Available water quality data is presented in Figure 5.4-3 and summarized in

Table 5.4-1.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>10-year Average (2005-2014)</th>
<th>Trend in Average</th>
<th>MPCA Standard¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Phosphorus</td>
<td>ug/L</td>
<td>45</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Chlorophyll a</td>
<td>ug/L</td>
<td>5.6</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Secchi Disc Depth</td>
<td>m</td>
<td>1.07</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

¹ MPCA eutrophication water quality standards are not applicable to wetlands

The 2003 water quality sampling results of the northwest lobe generally indicated poor water quality. The summer average Secchi disc transparency depth was 0.5 meters (1.6 feet). The summer average total phosphorus concentration was 83 µg/L. Since 2003, however, water quality in Weber Pond has generally improved, with summer average total phosphorus decreasing to less than 40 µg/L from 2008 through 2010. Secchi disc transparency has improved over the same period.

There is insufficient data to determine whether the improving trends in total phosphorus and Secchi disc transparency are statistically significant.

5.4.2.2 Biological Data
Biological data including macrophyte (large aquatic plant), phytoplankton (non-rooted floating plants – algae), zooplankton (microscopic aquatic animals), and fisheries data can provide insight into the ecological quality of a waterbody. Section 4.2 (Water Quality Background Information) provides more information about the importance of fisheries and other biological data.
The MDNR’s Lakefinder website includes the most current data on Weber Pond and is available at: http://www.dnr.state.mn.us/lakefind/lake.html?id=82011900

While there are no fishery, phytoplankton, (microscopic plants), or zooplankton (microscopic animals) data for Weber Pond, the VBWD conducted macrophyte (large aquatic plant) surveys on June 13, 2003 and August 19, 2003, and again in June of 2009.

Appendix A-5.4 includes the 2003 and 2009 macrophyte survey information for the northwest lobe of Weber Pond. The VBWD collects macrophyte data to identify the conditions of plant growth throughout the lake. Macrophytes are the primary producers in the aquatic food chain, converting the basic chemical nutrients in water and soil into plant matter through photosynthesis, which becomes food for all other aquatic life. While macrophytes can impact the recreational use of a water body, they are critical to the ecosystem as fish and wildlife habitat.

The pond’s moderately diverse plant community consisted of ten individual species in 2003. These species are common to Minnesota lakes and provide good habitat for the fish and aquatic animals living within the lake. Plant growth was found throughout the pond. In 2009, eight species of submerged plants, three species of floating leaf aquatic plants, and four species emergent aquatic plants were identified. No non-native, exotic species were noted in the macrophyte surveys.

5.4.3 Water Quantity Management Plan

Weber Pond is at the upstream end of the Project 1007 drainage system. The VBWD has no plans to modify the outlet of Weber Pond. The VBWD is responsible for ensuring the outlet is functioning properly, and therefore, the VBWD will perform annual inspections and perform any needed maintenance. If others propose changes to the lake’s outlet, the project will need to be approved by the VBWD.

The VBWD has water level data from various surveys and development plans. However, water levels in Weber Pond have not been recorded on a regular basis. VBWD will consider monitoring Weber Pond water levels, either using VBWD staff or requesting that the MDNR install a gage.

5.4.3.1 Drainage Patterns and Outlet Information

Weber Pond has a total (i.e., local and upstream) watershed area of 324 acres, including the pond surface area and the Echo Lake watershed. Runoff from the watershed enters the pond from culverts at various points along the shore of the pond.

Outflows from Echo Lake cross under Long Lake Road and 60th Street, discharging into the northwest corner of Weber Pond. The outlet for the larger (6.5-acre), northwest lobe of the pond is a staged outlet with a 9-inch diameter skimming orifice at Elevation 973.70, an overflow weir at Elevation 975.7, and a second overflow weir at Elevation 976.2 (NGVD88 datum). The low point along the old streetcar grade is at Elevation 978.4. The staged outlet was installed by the VBWD in 2001. The outlet for the northwest lobe of Weber Pond is shown on Figure 5.4-4. The current staged
outlet did not increase the 100-year flood level of Weber Pond, which the VBWD has set at Elevation 977.0 (NGVD29 datum).

Prior to the installation of this structure, the outlet was a 24-inch diameter pipe through the streetcar grade. This 24-inch diameter pipe was installed as an emergency, temporary measure in 1992 to replace the original outlet that collapsed in November 1991. The original Weber Pond outlet through the streetcar grade collapsed and resulted in the flooding of 60th Street North. Emergency measures were taken on November 20, 1991. The emergency measures consisted of removing the collapsed existing outlet, which was comprised of 50-gallon drum segments tied together, and digging a narrow channel with steep side slopes to replace the collapsed outlet. As approved by VBWD, the City of Mahtomedi installed the 24-inch diameter pipe in June, 1992, as a temporary measure.

The outflow outlet for the southeast (downstream) part of Weber Pond is a ditch, which begins to overflow at Elevation 973.7. This outflow then crosses Lincolntown Avenue into the City of Pine Springs, eventually discharging to Long Lake. The MDNR’s ordinary high water elevation (OHW) for Weber Pond is Elevation 974.9 (NGVD29 datum).

In 2013, the National Oceanographic and Atmospheric Administration (NOAA) published Atlas 14, Volume 8 (see Section 4.7.6). Atlas 14 contains updated precipitation data for Minnesota and supersedes data used to establish the 100-year flood level for Weber Pond. Within the VBWD, the 100-year, 24-hour event within the VBWD increased from 6.0 inches to 7.3 inches. The VBWD plans to update the 100-year flood level for lakes, including Weber Pond, to reflect Atlas 14 precipitation data and other current data sources. These updates may result in an increased flood level and may place additional structures within the floodplain.

5.4.4 References


Figure 5.4-2
WEBER POND WATERSHED
CURRENT (2010) AND FUTURE (2030) LAND USE

Current (2010) Land Use
- Farmstead
- Seasonal/Vacation
- Single Family Detached
- Manufactured Housing Park
- Single Family Attached
- Multifamily
- Retail and Other Commercial
- Office
- Mixed Use Residential
- Mixed Use Industrial
- Mixed Use Commercial and Other
- Industrial and Utility
- Extractive
- Institutional
- Park, Recreational or Preserve
- Golf Course
- Weber Pond Subwatershed
- Major Subwatershed Boundary

Future (2030) Land Use
- Agricultural
- Rural or Large-Lot Residential
- Single Family Residential
- Multifamily Residential
- Commercial
- Industrial
- Institutional
- Mixed Use
- Multi-Optional Development
- Park and Recreation
- Open Space or Restrictive Use
- Rights-of-Way (i.e., Roads)
- Major Subwatershed Boundary
- VBWD Legal Boundary

Source: Metropolitan Council 2010
1 inch = 1,000 feet
Figure 5.4-3

Weber Pond Water Quality
2015 - 2025 Watershed Management Plan
Valley Branch Watershed District
Figure 5.4-4

WEBER POND OUTLET STRUCTURE

Valley Branch Watershed District
Appendix A-5.4 Additional Macrophyte Information
FIELD NOTES:
- Macrophyte densities estimated as follows: 1=light; 2=moderate; 3=heavy
- Macrophytes found throughout entire waterbody
Macrophytes Found Throughout Entire Water Body

Macrophyte Densities Estimated as Follows: 1 = Light; 2 = Moderate; 3 = Heavy

**Common Name**

**Scientific Name**

**Submerged Aquatic Plants:**
- Narrowleaf pondweed
- Flatstem pondweed
- Northern milfoil
- Coontail
- Elodea
- Floating leaf pondweed

**Floating Leaf:**

**Emergent:**
- Water smartweed
- Bulrush
- Cattail
- Arrowhead

**No Aquatic Vegetation Found:**

**Water Quality Monitoring Location**

**Water Quality Monitoring Location**

- Potamogeton spp. (narrowleaf)
- Potamogeton zosteriformis
- Myriophyllum sibiricum
- Ceratophyllum demersum
- Elodea canadensis
- Potamogeton natans

- Polygonum amphibium
- Scirpus spp.
- Typha spp.
Macrophytes Found Throughout Entire Water Body
Macrophyte Densities Estimated as Follows: 1 = Light; 2 = Moderate; 3 = Heavy

Common Name | Scientific Name
---|---
Narrowleaf pondweed | Potamogeton spp. (narrowleaf)
Flatstem pondweed | Potamogeton zosteriformis
Northern milfoil | Myriophyllum sibiricum
Coontail | Ceratophyllum demersum
Elodea | Elodea canadensis
Floating leaf pondweed | Potamogeton natans

Submerged Aquatic Plants:

Emergent:
Water smartweed | Polygonum amphibium
Bulrush | Scirpus spp.
Cattail | Typha spp.
Arrowhead | Sagittaria spp.

Floating Leaf:

No Aquatic Vegetation Found:

*Filamentous Algal Mats Along Pond Perimeter

WEBER POND
MACROPHYTE SURVEY
AUGUST 19, 2003